

WHAT IS CLAIMED IS:

1. An installation for treating water to remove dissolved gases therefrom, comprising:

a closed outer tank having a floor and walls for storage of water to a predetermined level therein and defining a space in said outer tank above said predetermined level;

a vented inner tank for water treatment, contained at least partially within the outer tank, and having an outer wall extending above and below said predetermined level;

means for delivering water to be purified from outside the installation to the inner tank, including outlet means disposed in an upper portion of the inner tank;

a column of packing medium for purifying water, said column located in said inner tank and disposed below said outlet means in a manner to allow water from the outlet means to trickle over the column of packing medium for a purifying treatment;

means for agitating said column of packing medium for cleaning thereof;

pipe means in flow connection between said outer tank and a lower portion of said inner tank below said column of packing medium for allowing treated water to pass into said outer tank for storage;

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means disposed in a lower portion of said outer tank for removing solids carried into the outer tank in water passed into said outer tank for storage;

outlet means for removing stored water from said outer tank;

means for delivering a predetermined flow of air into said outer tank in said space;

air vent means located in an upper portion of said inner tank above said column of packing medium, said air vent means in flow connection with the atmosphere; and

air inlet means in flow connection between said space and an a portion of said inner tank below said column of packing medium, whereby the flow of air passes from said outer tank to said inner tank, through said column of packing medium in countercurrent flow to the water tricking through the column for removing dissolved gases from the water, and through said vent means to the atmosphere.

2. The installation of claim 1, wherein said outer tank and said inner tank are in concentric relationship.

3. The installation of claim 1, wherein said inner tank extends in height above said outer tank.

4. The installation of claim 1, additionally comprising a source of chlorine for injection into treated water, said source in flow connection with said means for removing or with said outer tank.

5. The installation of claim 4, additionally comprising means for immersing said column of packing material in a cleaning medium for cleaning said column.

6. The installation of claim 5, wherein the cleaning medium is chlorinated water.

7. The installation of claim 1, wherein said means for delivering a predetermined flow of air comprises at least one fan.

8. The installation of claim 7, wherein said outer tank comprises a roof portion, and said at least one fan is located on said roof portion outside of said outer tank, a duct means being provided between said at least one fan and said space.

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9. The installation of claim 8, wherein said means for delivering a predetermined flow of air comprises a plurality of fans placed peripherally around said roof portion.

10. The installation of claim 1, additionally comprising means for inducing a swirling motion in water passed into said outer tank for storage.

11. The installation of claim 10, wherein the means for inducing a swirling motion comprises said pipe means having at least two outlets therein for delivering water into the outer tank.

12. The installation of claim 1, wherein said means for removing solids comprises a recessed trench disposed radially in the floor of said outer tank.

13. The installation of claim 12, wherein the recessed trench has disposed therein vacuum means for removing solids therefrom.

14. The installation of claim 1, wherein the means for agitating comprises means for delivering an agitating fluid flow to the column.

15. A method for removing dissolved gases from water, comprising the steps of:

- a) disposing an inner water treating tank at least partially within an outer water storage tank;
 - b) spraying water to be treated in an upper portion of said inner tank;
 - c) aerating said water by allowing the sprayed water to trickle down over a column of packing medium in said inner tank;
 - d) providing a flow of air into said outer tank above said predetermined level and passing said air into said inner tank below the column of packing medium, through said column in countercurrent manner to said water, and to the atmosphere;
 - e) passing the aerated water from said inner tank to said outer tank for storage up to a predetermined level, with deposition of solids in a lower portion of said outer tank;
- and

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f) removing the deposited solids from the lower portion of said outer tank.

16. A method according to claim 15, additionally comprising chlorinating water in the outer tank or exiting from the outer tank.

17. A method according to claim 15, additionally comprising passing a cleaning medium into said inner tank, so as to immerse said column of packing medium the cleaning medium, and simultaneously agitating said column of packing medium.

18. The method of claim 17, wherein the cleaning medium comprises chlorinated water.

19. A method according to claim 15, wherein the dissolved gases are selected from the group consisting of hydrogen sulfide, carbon dioxide and mixtures thereof.

20. A method according to claim 15, wherein the dissolved gases include hydrogen sulfide, and the hydrogen

sulfide is decomposed by biological action as the water trickles down over the column of packing medium.

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